

WHAT IS CLAIMED IS:

1. An electro-optical device, comprising:
  - an electro-optical element with a current-based data signal defining a tonal gradation level of pixels, and supplied to data lines, and with a luminance set in response to a driving current flowing from a power source voltage to a voltage lower in level than the power source voltage;
  - the data lines arranged for respective pixels;
  - power source lines to supply the pixels with the power source voltage;
  - signal transfer lines;
  - a first switching element to control electrical conduction between the data line and the signal transfer line; and
  - a second switching element to control electrical conduction between the power source voltage and the signal transfer line,
  - during a first mode in which the data signal is supplied to the data line not through the first switching element, the first switching element is set to be in a non-conductive state while the second switching element is set to be in a conductive state, and
  - during a second mode in which a signal different from the data signal is supplied to the data line through the first switching element, the first switching element is set to be in a conductive state while the second switching element is set to be in a non-conductive state.
2. The electro-optical device according to claim 1, further comprising:
  - a first transistor that writes data to a capacitor in response to the data signal flowing through a data signal channel; and
  - a second transistor arranged along the signal transfer line between the first switching element and the second switching element, having the same characteristics as the first transistor, and is configured in a diode-mode connection.
3. An electro-optical device, comprising:
  - an electro-optical element with a current-based data signal defining a tonal gradation level of pixels, supplied to data lines and with a luminance set in response to a driving current;
  - the data lines arranged for respective pixels;
  - signal transfer lines; and
  - a switching element to control electrical conduction between the data line and the signal transfer line,

during a first mode in which the data signal is supplied to the data line not through the switching element, the switching element is set to be in a non-conductive state while the signal transfer line is supplied with a predetermined voltage corresponding to a voltage that occurs in the data line when the data line is supplied with the data signal defining the lowest tonal gradation level, and

during a second mode in which a signal different from the data signal is supplied to the data line through the switching element, the switching element is set to be in a conductive state while the supplying of the predetermined voltage to the signal transfer line is stopped.

4. The electro-optical device according to claim 1, the first mode being a normal mode to cause the electro-optical device to display an image under normal operating conditions, and the second mode being a test mode to test the electro-optical device.

5. The electro-optical device according to claim 4, the signal transfer line is a test line connected to a pad to which an external signal is supplied during the test mode.

6. The electro-optical device according to claim 1, the power source lines including three lines respectively arranged for the three RGB colors, and the three RGB color power source lines have independent and respective signal transfer lines and switching elements.

7. An electronic apparatus incorporating the electro-optical device according to claim 1.

8. A method to drive an electro-optical device having an electro-optical element with a current-based data signal defining a tonal gradation level of pixels, and supplied to data lines, and with a luminance set in response to a driving current flowing from a power source voltage to a voltage lower in level than the power source voltage, the method comprising:

setting, to be in a non-conductive state, a first switching element that controls electrical conduction between the data line arranged for respective pixels and a signal transfer line and setting, to a conductive state, a second switching element that controls electrical conduction between the power source voltage and the signal transfer line, during a first mode in which the data signal is supplied to the data line not through the first switching element; and

setting the first switching element to be in a conductive state and setting the second switching element to be in a non-conductive state during a second mode in which a

signal different from the data signal is supplied to the data line through the first switching element.

9. The method to drive an electro-optical device according to claim 8, the electro-optical device including a first transistor that writes data to a capacitor in response to the data signal flowing through the channel thereof, and

    a second transistor that is arranged along the signal transfer line between the first switching element and the second switching element, has the same characteristics as the first transistor, and is configured in a diode-mode connection, the method further comprises:

    supplying the power source voltage of the power source line to the signal transfer line through the second transistor.

10. The method to drive an electro-optical device having an electro-optical element with a current-based data signal defining a tonal gradation level of pixels, and supplied to data lines and with a luminance set in response to a driving current, the method comprising:

    setting, to be in a non-conductive state, a switching element that controls electrical conduction between the data line and a signal transfer line, and supplying the signal transfer line with a predetermined voltage corresponding to a voltage that occurs in the data line when the data line is supplied with the data signal defining the lowest tonal gradation level, during a first mode in which the data signal is supplied to the data line arranged for respective pixels, not through the switching element; and

    setting the switching element to be a conductive state and stopping the supplying of the predetermined voltage to the signal transfer line, during a second mode in which a signal different from the data signal is supplied to the data line through the switching element.

11. The method to drive an electro-optical device according to claim 8, the first mode being a normal mode to cause the electro-optical device to display an image under normal operating conditions, and the second mode being a test mode for testing the electro-optical device.

12. The method to drive an electro-optical device according to claim 11, the signal transfer line being a test line connected to a pad to which an external signal is supplied during the test mode.